

FORM PTO-1449 U.S. Department of Commerce Patent and Trademark Office	Docket No.: INTEL1480-2 (P13833X)	Serial No.: 10/705,389
	Applicants: Sundarararajan, et al.	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date: November 10, 2003	Group Art Unit: 1632 1634

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
<i>BZA</i>	A	6,280,939	8/28/01	Michael J. Allen	435	6	
	B	6,436,647	8/20/02	Quate, et al.	435	6	
	C	6,500,650	12/31/02	Stanton, Jr., et al.	435	91.1	
	D	6,509,158	1/21/03	David C. Schwartz	435	6	
	E	6,514,767	2/4/03	Michael Natan	436	166	
<i>BZA</i>	F	2002/0022261	2/21/02	Anderson, et al.	435	287	

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION (YES/NO)

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

<i>BZA</i>	G	Doering, et al., "Spectroscopic Tags Using Dye-Embedded Nanoparticles and Surface -Enhanced Raman Scattering", <i>Analytical Chemistry</i> , :5-9
<i>BZA</i>	H	Mulvaney, et al., "Glass-Coated, Analyte-Tagged Nanoparticles: A New Tagging System Based on Detection with Surface-Enhanced Raman Scattering", <i>Am Chem Soc.</i> 19:4784-4790 (2003).

EXAMINER GT6423943.1 1090132-100	<i>B.L. Lison</i>	DATE CONSIDERED 4/26/06
--	-------------------	--------------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Please type a plus sign (+) in this box

+

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

<p>Substitute for form 1449A/PTO (modified) INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)</p>				<i>Complete if known</i>	
				Application Number	Not Yet Assigned
				Filing Date	Concurrently Herewith
				First Named Inventor	Narayan Sundararajan, et al
				Group Art Unit	Not yet assigned 1634
				Examiner Name	Not yet assigned Sisson, B.
Sheet	1	of	5	Attorney Docket	42P13833X

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. ¹	U.S. Patent Document Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines Where Relevant Passages or Figures Appear
BXJ		5,106,729		Lindsay et al.	04/21/1992	
	1	5,607,568		Zenharusem et al.	03/04/1997	
		5,866,328		Bensimon et al.	02/02/1999	
		6,033,852		Andle et al.	03/07/2000	
		6,073,484		Miller et al.	06/13/2000	
		6,079,255		Binnig et al.	06/27/2000	
		6,092,422		Binnig et al.	07/25/2000	
		6,123,819		Peeters	09/26/2000	
		6,194,148		Hori et al.	02/27/2001	
		6,280,939		Allen	08/28/2001	
		6,310,189		Fodor et al.	10/30/2001	
		6,325,904		Peeters	12/04/2001	
BZJ		6,379,895		Fodor et al.	04/30/2002	

Foreign Patent Documents						
Examiner's Initials	Date	Document Number	Country	Class	Sub-Class	Translation
BZJ	03/13/1997	WO 97/09584				

Examiner Signature	BXJ	Date Considered	4/26/04
--------------------	-----	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) in this box

+

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO
 (modified)
**INFORMATION DISCLOSURE
 STATEMENT BY APPLICANT**
 (use as many sheets as necessary)

Sheet	2	of	5	Complete if known
				Application Number Not yet assigned
				Filing Date Concurrently Herewith
				First Named Inventor Narayan Sundararajan, et al.
				Group Art Unit Not yet assigned 1634
				Examiner Name Not yet assigned SISON, B.
				Attorney Docket 42P13833X

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
BfJ		ABADAL, et al., "Non-Linear Static and Dynamic Behaviour of an Electrostatically Excited Nanocantilever: Electrical Modelization and AFM Characterization," 9 th MEL-ARI/NID Workshop: 6-8 February 2002, Catania, Italy, 2 pages.	
		ABADAL, et al., "Fabrication and Modelling of a Nano-Cantilever for the Development of Sub-Picogram Sensitivity Mass Sensor," TNT2000, 16 th -20 th October 2000, Toledo, Spain, 1 page.	
		AUGUSTIN, et al., "Progress Towards Single-Molecule Sequencing: Enzymatic Synthesis of Nucleotide-Specifically Labeled DNA," Journal of Biotechnology 86 (2001) 289-301.	
		BALLATO, "Modeling Piezoelectric and Piezomagnetic Devices and Structures via Equivalent Networks," <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , Vol. 48, No. 5, September 2001 1189-1240.	
		BALLER, et al., "A Cantilever Array-Based Artificial Nose," Ultramicroscopy 82 (2000) 1-9.	
		BARDEA, et al, "Amplified Microgravimetric Quartz-Crystal-Microbalance Analyses of Oligonucleotide Complexes: A Route to a Tay-Sachs Biosensor Device," <i>Chem., Commun.</i> , 1998 839-840.	
		BHANSALI, "Research: Nanoporous Silica/Piezoelectric Cantilevers for Biosensing Applications," Retrieved from the Internet March 1, 2002, http://www.princeton.edu/~cml/html/research/biosensor.html , 3 pages.	
		CULLUM, et al., "The Development of Optical Nanosensors for Biological Measurements," <i>Trends in Biotech</i> , September 2000, Vol. 18, 388-393.	
		DAVIS, et al., "Nano-Resonators for High Spatial Resolution Mass Detection," Retrieved from the Internet December 13, 2002, http://www.nbi.dk/dfs/abs2000/ff16.html , 1 page.	
		FABIAN, et al., "Fabrication of Micromechanical Cantilever Sensors for Nanoscale Thermal Detection," PSI Annual Report 1999, 1 page.	
BfJ		FRITZ, et al., "Translating Biomolecular Recognition into Nanomechanics," <i>Science</i> , Vol. 288, April 2000, 2 pages	

Examiner Signature	<i>B.J. Sison</i>	Date Considered	4/26/06
--------------------	-------------------	-----------------	---------

¹EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

²Unique citation designation number. ³See attached Kinds of U.S. Patent Documents. ⁴Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁷Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) in this box

+

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO (modified) INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if known	
Sheet	3	of	5	Application Number	Not yet assigned
				Filing Date	Concurrently herewith
				First Named Inventor	Narayan Sundararajan, et al.
				Group Art Unit	Not yet assigned 1674
				Examiner Name	Not yet assigned SISSON, B.
				Attorney Docket	42P13833X

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
BJF		GEORGE, "Microcantilever Sensor Research," Retrieved from the Internet January 21, 2002, http://www.chemistry.uah.edu/faculty/george/cantilever.html , 2 pages.	
		HANSEN, et al., "Cantilever-Based Optical Deflection Assay for Discrimination of DNA Single-Nucleotide Mismatches," <i>Anal. Chem.</i> , 2001, 73, 1567-1571.	
		HARLEY, "Advances in Piezoresistive Probes for Atomic Force Microscopy," A dissertation submitted to the Department of Mechanical Engineering and the Committee on Graduate Studies of Stanford University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy, March 2000, 140 pages.	
		ILIC, et al., "Mechanical Resonant Immunospecific Biological Detector," <i>Applied Physics Letters</i> , Volume 77, Number 3, July 2000, 450-452.	
		JENSENTUS, et al., "Micromechanical Bioprosbes," Retrieved from the Internet January 21, 2002, http://www.nbi.dk/~biophys_meeting_99/abs44.html , 1 page.	
		KOLL, et al., "CMOS-Based Chemical Microsensors and Microsystems," Retrieved from the Internet March 1, 2002, http://www.iqe.ethz.ch/pe1/annrep/annrep99/JB99_PEL_08.html meeting 99/abs44.html, 5 pages.	
		LANG, et al., "An Electronic Nose Based on a Micromechanical Cantilever Array," Retrieved from the Internet, www.chem.ucla.edu/dept/Faculty/gimzewski/pub/UTAS.pdf , 4 pages.	
		LANG, et al., "Sequential Position Readout from Arrays of Microchemical Cantilever Sensors," <i>Appl. Phys. Lett.</i> , 72(3), January 1998, 383-385.	
BJF		LANG, et al., "An Artificial Nose Based on a Micromechanical Cantilever Array," <i>Analytica Chimica Acta</i> , 393 (1999) 59-65.	

Examiner Signature	<i>B.J. Sison</i>	Date Considered	4/26/04
--------------------	-------------------	-----------------	---------

¹EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

²Unique citation designation number. ³See attached Kinds of U.S. Patent Documents. ⁴Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) in this box

+

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO (modified) INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				<i>Complete if known</i>	
Sheet	4	of	5	Application Number	Not yet assigned
				Filing Date	Concurrently Herewith
				First Named Inventor	Narayan Sundararajan, et al.
				Group Art Unit	Not yet assigned- 1634
				Examiner Name	Not yet assigned- SISSON, B.
				Attorney Docket	42P13833X

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
Bff		MÜLLER, et al., "Electrostatically Balanced Subnanometer Imaging of Biological Specimens by Atomic Force Microscope," <i>Biophysical Journal</i> , Volume 76, February 1999, 1101-1111.	
		TAMAYO, et al., "High-Q Dynamic Force Microscopy in Liquid and Its Application to Living Cells," <i>Biophysical Journal</i> , Volume 81, July 2001, 526-537.	
		VOLDMAN, et al, "Microfabrication in Biology and Medicine," <i>Annu. Rev. Biomed. Eng.</i> , 1999, 401-425.	
		WILSON, "A Practical Approach to Vibration Detection and Measurement," Retrieved from the Internet February 4, 2002, http://www.sensormag.com/articles/0299/prac0299/mail.shtml , 19 pages.	
		WU, et al., "Origin of Nanomechanical Cantilever Motion Generated from Biomolecular Interactions," <i>PNAS</i> , Vol. 98, No. 4, February 2001, 1560-1564.	
		Yamaguchi, et al., "Adsorption, Immobilization, and Hybridization of DNA Studied by the Use of Quartz Crystal Oscillators," <i>Anal. Chem.</i> 1993, 65, 1925-1927.	
		Zhou, et al., "Microgravimetric DNA Sensor Based on Quartz Crystal Microbalance: Comparison of Oligonucleotide Immobilization Methods and the Application in Genetic Diagnosis," <i>Biosensors and Bioelectronics</i> , 16 (2001) 85-95.	
		"Single Cell Detection Using Micromechanical Oscillators," <i>Biology and Chemistry</i> , Project # 762-99, "Retrieved from the Internet on January 7, 2003, URL:< http://www.nnf.cornell.edu/2001cnfra/200138.pdf > 2 pages.	
Bff		"Nanomechanical Cantilever Array Sensors," Retrieved from the Internet on January 7, 2003, URL:< http://monet.physik.unibas.ch/nose/inficon > 5 pages.	

Examiner Signature	<i>B. L. Liss</i>	Date Considered	<i>4/26/06</i>
--------------------	-------------------	-----------------	----------------

¹EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

²Unique citation designation number. ³See attached Kinds of U.S. Patent Documents. ⁴Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁷Applicant is to place a check mark here if English language Translation is attached.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<p>Substitute for form 1449A/PTO</p> <p>(modified)</p> <p>INFORMATION DISCLOSURE</p> <p>STATEMENT BY APPLICANT</p> <p>(use as many sheets as necessary)</p>				<p><i>Complete if known</i></p>	
				Application Number	Not yet assigned
				Filing Date	Concurrently Herewith
				First Named Inventor	Narayan Sundararajan, et al.
				Group Art Unit	Not yet assigned 1634
				Examiner Name	Not yet assigned SISSON, B.
				Attorney Docket	42P13833X
Sheet	5	of	5		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Signature	B. L. Sison	Date Considered	4/26/06
-----------------------	-------------	--------------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard St.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.